REMARKS

Generally

To anticipate a claim, the reference must teach every element of the claim. *See* Manual of Patent Examining Procedure ("MPEP") § 2131.01. In rejecting claims in the application, the Office Action (OA) mischaracterizes the technology disclosed in U.S. Patent No. 5,701,400 to Amado ["AMADO"] to find claim elements not present in AMADO. In some instances, e.g., Claim 1, the OA neglects to account for all the claim elements. In general, AMADO is insufficient as a 35 U.S.C. § 102 ("§ 102") reference against the claimed invention. Further, the OA neglects to cite the paragraph of § 102 relied on for the rejections. For the purpose of this reply, it is assumed that § 102 (b) is relied on.

Several references are used to illustrate how AMADO has been mischaracterized. Those references, that can be found attached to this reply, are:

- Attachment 1. [MCCARTHY] John McCarthy, *Partial Formalizations and the Lemmings Game*, "nonmonotonic reasoning" (March 2, 1998) <http://www-formal.stanford.edu/jmc/lemmings/node22.html >, accessed 12/10/2003.

- Attachment 2. [RICH] ELAINE RICH, ARTIFICIAL INTELLIGENCE (various pages as noted) New York: McGraw Hill. (ISBN 0-07-052261-8).

- Attachment 3. [KAPPA] Kappa-PC, Object Browser <http://www.intellicorp.com/products/kappapc/download/kappa_pc_download.htm.>, accessed 12/08/2003.

- Attachment 4. [CORKILL] Daniel D. Corkill, *Blackboard Systems*, *AI Expert* 6(9):40-47, September 1991.

In several places, the OA appears to rely on either improperly-taken official notice or an un-cited reference. In either case, a rejection under § 102 is improper. Official notice, without citation to a reference, is appropriate only when the assertion is capable of instant and unquestionable demonstration as being well-known. *See* MPEP § 2144.03. It is readily seen that, in each instance of apparent official notice, the noticed information is not capable of instant and unquestionable demonstration as being well-known. Except under limited circumstances (none of which applies here) a rejection under § 102 must be supported by a **single** reference that teaches every element of the claim. *See* MPEP § 2131. The undersigned requests any un-cited references be produced and instances of improperly-taken official notice be withdrawn.

Regarding the Drawings

Figures 1, 3, 4, and 5 have been revised to address the objection that font size and/or setting render sections of the figures unreadable. Revised figures can be found attached to this reply.

Regarding Objections to Claims 9-17 and 21

In light of the remarks to follow regarding claim rejections, Claims 9-17 and 21 are in condition for allowance without rewriting them in independent form including all of the limitations of the base claim, any intervening claims and other issues related to the OA.

Regarding Rejections to Claims 5-8, 26, and 27 Under 35 U.S.C. § 112, First Paragraph

Regarding Rejection of Claim 5 Under 35 U.S.C. § 112, First Paragraph.

The OA asserts that:

> [t]he "non-monotonic model of economic benefit" is not enabled by the specification.

The written description as originally filed contains a definition of non-monotonic truth maintenance at P11 L13-15. In addition non-monotonic logic is well known as describing a type of inference framework that draws conclusions tentatively. *See, e.g.*, Attachment 1. Those skilled in the art of the invention would understand an economic model based on non-monotonic reasoning.

As a consequence the phrase non-monotonic model of economic benefit does find support in both the specification and in the art to enable one skilled in the art of the invention to make and/or use the invention.

Regarding Rejection of Claim 6 Under 35 U.S.C. § 112, First Paragraph.

The OA asserts that:

> [t]he "commitment level of the partial order planner" is not enabled by the specification.

The written description as originally filed discloses, at P05 L09 – P06 L04 (emphasis added), that:

> ... ***partial order, least commitment planners*** *provide for graded levels of commitment to a set of activities. This allows the planner to maintain multiple alternative means to achieve multiple simultaneous goals, and **increase or decrease its level of commitment** to each of the alternatives as the situation unfolds. In this way, the choice of alternative to execute can be deferred until it is clear which alternative is superior. A partial order least commitment planner is also able to select multiple alternatives for execution as a means for hedging against uncertainty in outcomes.*

Also, at P20 L10-19 (emphasis added; the reference to Fig. 6 should be to Fig. 4), the written description discloses:

> *In one embodiment of the present invention, the planner 302 is a **partial order planner** and **manages its level of commitment to the activities in the plan by using a state transition method to set the life cycle states of plan sub-elements**. One embodiment of the plan life cycle state transitions is shown in FIG 6. As a plan sub-element moves through its life cycle states from candidate towards the active state, **the partial order planner is increasing its commitment to that plan sub-element. The partial order planner may also reduce its commitment** by changing the plan sub-element state to rejected state or revoked state and ultimately to a terminated state. This mechanism provides a non-monotonic, graded level of commitment for each plan sub-element.*

By these examples at a minimum, the phrase commitment level of the partial order planner does find support in the specification to enable one skilled in the art of the invention to make and/or use the invention.

Regarding Rejection of Claim 7 Under 35 U.S.C. § 112, First Paragraph.

The OA asserts that:

> "[t]he "life cycle states of one or more plan instances according to a commitment level of the partial order planner" is not enabled by the specification."

The written description, as originally filed, discloses at P20 L10-19 (emphasis added; the reference to Fig. 6 should be to Fig. 4):

> *In one embodiment of the present invention, the planner 302 is a partial order planner and **manages its level of commitment to the activities in the plan by using a state transition method to set the life cycle states of plan sub-elements**. One embodiment of the plan life cycle state transitions is shown in FIG 6. As a plan sub-element moves through its life cycle states from candidate towards the active state, the partial order planner is increasing its commitment to that plan sub-element. The partial order planner may also reduce its commitment by changing the plan sub-element state to rejected state or revoked state and ultimately to a terminated state. This mechanism provides a non-monotonic, graded level of commitment for each plan sub-element."*

Further, at P28 L10-16, the written description discloses (emphasis added):

*In addition to creating the decomposition of a plan into its sub-elements, **the planner manages the specific life cycle states of each sub-element of a plan.** The life cycle states, depicted in FIG. 4, provide the mechanism for managing the commitment of the system to the each of the plan sub-elements. Each of the life cycle states of a plan sub-element has specific monitoring knowledge associated with it, serving to focus the processing of the situation assessor and providing for an event-based control of the planner.*

By these examples at a minimum, the phrase "l i f e   c y c l e   s t a t e s   o f   o n e   o r   m o r e   p l a n   i n s t a n c e s   a c c o r d i n g   t o   a   c o m m i t m e n t   l e v e l   o f   t h e   p a r t i a l   o r d e r   p l a n n e r" does find support in the specification to enable one skilled in the art of the invention to make and/or use the invention.

Regarding Rejection of Claim 8 Under 35 U.S.C. § 112, First Paragraph.

The OA asserts that:

> "[t]he "inference engine determined what further processing is needed by the partial order planner based on the monitoring of the situation" is not enabled by the specification."

P27 L10-16 of the written description, as originally filed, states:

> *Each of the life cycle states of a plan sub-element has specific monitoring knowledge associated with it, serving to focus the processing of the situation assessor and providing for an event-based control of the planner. Throughout the life cycle of a PGG plan or goal, the partial order planner maintains the parameters of the plan or goal and monitors for its success or failure. As a result, the planner can dynamically adjust plan parameters that mediate its execution and dynamically reselect and specialize children of a node as required.*

By this example at a minimum, the phrase "inference engine determined what further processing is needed by the partial order planner based on the monitoring of the situation" does find support in the specification to enable one skilled in the art of the invention to make and/or use the invention.

<u>Regarding Rejection of Claim 26 Under 35 U.S.C. § 112, First Paragraph.</u>

The OA asserts that "`[t]he claim as stated is not to be found in the specification.`"

The claim states:

> 26. *The dynamic business process management system of claim 25, wherein each agent of the plurality of agents determines the intentions of one or more users and wherein the data management system of a first agent of the plurality of intelligent agents shares data with a second agent of the plurality of intelligent agents representing the determined intentions of the one or more users to facilitate collaboration.*

The written description, as originally filed, discloses at P26 L14-P24 L19(emphasis added):

> *In another embodiment of the present invention, a plurality of dynamic business process management systems after the present invention, and each containing an inference engine with a situation assessor 307, can send and receive concept instances to each other. In this manner, **sharing of situations between the separate dynamic business process management systems is performed, allowing all participating systems to take advantage of results and conclusions made by another such system**. The communications may take place over a plurality of communications means, including direct connection, telephony, wireless medium, or network, such as Internet or local area networks.*

> *In one embodiment of the present invention, the **plans and situations shared by a set of distributed dynamic business process management systems** that contain inference engines after the present invention are used by the inference engines to detect conflicts in planning between the collaborating companies. When a new or updated plan is received from a collaborating party by a second collaborating party, the supply chain management inference engine of the second party evaluates the plan provided by the first party for conflicts with any existing plans of the second party. The knowledge base 306 contains specific knowledge defining how plans and goals can be in conflict. In one embodiment, the plan and goal conflict detection uses the approach described in Geddes, N.D., A model for intent interpretation for multiple agents with conflicts (1994). When conflicts are detected with shared plans, the conflicting parties are both notified about the detailed nature of the conflict using the information manager 304.*

The *intentions of users* are *determined* by the *sharing of situations between* the separate systems. By this example at a minimum, the claim, as stated, finds support in the specification to enable one skilled in the art of the invention to make and/or use the invention.

The written description, as originally filed, also discloses at P21 L9(emphasis added):

> *In another embodiment of the present invention, a plurality of dynamic business process management systems after the present invention, and each containing an inference engine with a planner 302, can send and receive plan instances and life cycle changes for plan instances to each other.* **In this manner, sharing of planning and graded commitment between the separate dynamic business process management systems is performed, allowing all participating systems to take advantage of information about the plans made by another such system.** *The communications may take place over a plurality of communications means, including direct connection, telephony, wireless medium, or network, such as Internet or local area networks.*

By this example at a minimum, the claim as stated does find support in the specification to enable one skilled in the art of the invention to make and/or use the invention.

Regarding Rejection of Claim 27 Under 35 U.S.C. § 112, First Paragraph.

The OA asserts that:

> ```
> [t]he "shared data to automatically detect conflicts"
> is not enabled by the specification.
> ```

P26 C14 - P27 C15 of the written description, as originally filed, states (emphasis added):

> *In another embodiment of the present invention, a plurality of dynamic business process management systems after the present invention, and each containing an inference engine with a situation assessor 307,* **can send and receive concept instances to each other.** **In this manner, sharing of situations between the separate dynamic business process management systems is performed,** *allowing all participating systems to take advantage of results and conclusions made by another such system. The communications may take place over a plurality of communications means, including direct connection, telephony, wireless medium, or network, such as Internet or local area networks.*
>
> **In one embodiment of the present invention, the plans and situations shared by** *a set of distributed dynamic business process management systems that contain inference engines after the present invention* **are used by the inference engines to detect conflicts**

in planning between the collaborating companies. When a new or updated plan is received from a collaborating party by a second collaborating party, the supply chain management inference engine of the second party evaluates the plan provided by the first party for conflicts with any existing plans of the second party. The knowledge base 306 contains specific knowledge defining how plans and goals can be in conflict. In one embodiment, the plan and goal conflict detection uses the approach described in Geddes, N.D., A model for intent interpretation for multiple agents with conflicts (1994). When conflicts are detected with shared plans, the conflicting parties are both notified about the detailed nature of the conflict using the information manager 304.

By this example at a minimum, the phrase `"shared data to automatically detect conflicts"` does find support in the specification to enable one skilled in the art of the invention to make and/or use the invention.

Regarding Rejections to Claims 18-23 Under 35 U.S.C. § 101, the OA Fails to Establish a Prima Facie Case of Lack of Utility.

The OA asserts that:

> Claims 18-23 rejected under 35 U.S.C. 101 because the claimed invention lacks patentable utility. The practical application test requires that a useful, concrete and tangible result be accomplished. Claims 18-23 represent abstract methodology and therefore are intangible.

The Examiner has the burden to establish a *prima* facie case that the claimed invention as a whole is directed to solely an abstract idea or to manipulation of abstract ideas or does not produce a useful result. **Only when the claim is devoid of any limitation** to a practical application in the technological arts should it be rejected under 35 U.S.C. 101. Further, such a rejection must expressly state how the language of the claims has been interpreted to support the rejection. *See* MPEP § 2106.

Claim 18 states, in part:

> *... using a knowledge base to create a plan for meeting the determined goal.*

Claim 18 produces a useful, concrete, and tangible result, e.g., *a plan* for meeting a determined goal. *Plan* and *goals* are described as useful, concrete, and tangible items throughout the written description. As a consequence, the OA does not establish a *prima facie* case for rejection of Claims 18-23 under 35 U.S.C. §101.

Regarding Rejections to Claims 1-4, 18-20, and 22-25 Under 35 U.S.C. § 102 as Anticipated by AMADO.

<u>Regarding Claims 1, 24, and claims dependent from them, the OA fails to establish a *prima facie* case of anticipation for failure to address several limitations.</u>

(1, 24) The OA fails to address *the inference engine including a partial order planner*.

The claims state, in part:

> *... an inference engine coupled to the knowledge base, the inference engine including a partial order planner; ...*

The OA asserts, in part, that:

> Amado anticipates ... <the above-cited portion of the claims> (Amado, col 2, lines 52-65; col 31, lines 58-67; Examiner's Note (EN): from the specification, page 19, lines 18-21, a planner merely solves what is normally referred to as an NP type problem; from specification, page 20, lines 1-9, a partial order planner determines a less than optimal solution or what may be referred to as a local optimum; using para 2 above, a generalized expert system is equivalent to a partial order or least commitment planner);
> ...

"para 2 above" asserts, in part :

> 2. The claims and only the claims form the metes and bounds of the invention. The Examiner has full latitude to interpret each claim in the broadest reasonable sense. Examiner will reference prior art using terminology familiar to one of ordinary skill in the art.

The referenced lines from AMADO do not disclose the use of a partial order planner. The OA explicitly acknowledges this by relying on the Examiner's Note to incorrectly equate a generalized expert system to the required partial order planner.

First, the OA neglects to consider the explicit differences between expert systems and partial order/least commitment planners found throughout the specification, e.g., P05 L10 – P06 L04 (describing partial order planners), P09 L12 – P11 L15 (a glossary listing different definitions for, among other things, *expert system, partial order planner, least commitment planner*). Taking a broad interpretation of the claims does not include intentionally ignoring distinctions made clear in the written description.

Second, those skilled in the art at the time of invention knew that generalized expert systems are not equivalent to partial order planners. A rule-based expert system is poorly suited to the problem of a partial order planner because rules do not conveniently and compactly support the relationships needed in planning (e.g., problem decomposition into sub-problems, conflict management, sequencing of sub-problems, constraint management).

The unique aspects of planning that clearly distinguished planning from any other type of knowledge-based system is given on pages 40-45, sections 2.2.2 through 2.2.4, of RICH. *See* Attachment 2. Furthermore, RICH also elaborates on the distinctions between different types of planning and planners and shows the importance of these differences in discussions on pages 73-75 in conjunction with the method known as "generate and test". This reference is one of many of this period that clearly distinguish between planning and rule-oriented logic systems, a distinction that was well known by those practiced in the art. RICH, Chapter 8, describes least commitment planning (page 258-259 and 272-275) and clearly distinguishes it from other forms of planning and reasoning. *See* Attachment 2.

Finally, the OA appears to rely on either improperly-taken official notice, or an un-cited reference. In each case, a rejection under § 102 is improper. Official notice, without citation to a reference, is appropriate only when the assertion is capable of instant and unquestionable demonstration as being well-known. *See* MPEP 2144.03. It is readily apparent that the

assertion "a generalized expert system is equivalent to a partial order or least commitment planner" is not capable of instant and unquestionable demonstration as being well-known. Except under limited circumstances (none of which applies here) a rejection under § 102 must be supported by a **single** reference that teaches every element of the claim. *See* MPEP 2131.

As a consequence, the invention as claimed in Claims 1, 24, and claims dependent from them remain patentably distinct from AMADO .

(1, 24) The OA fails to address *management system that collects and distributes data regarding one or more business processes.*

The claims state, in part:

> *...management system that collects and distributes data regarding one or more business processes; ...*

The OA asserts, in part, that AMADO discloses this limitation at C48 L54-57 and Fig. 127. The cited section of AMADO states:

> FIG. 127 shows a typical report generated by a "corrective management system": profits and number of defects for four business divisions for the previous and current periods, and the increment (decrement) in these numbers.

The referenced lines from AMADO merely refer to the figure. Neither the referenced lines nor the figure relates to goals (future objectives) in any sense. The referenced lines and figure relate to **past** performance. Except under limited circumstances (none of which applies here) a rejection under § 102 must be supported by a reference that teaches **every** element of the claim. *See* MPEP § 2131. Here, the reference does not teach every element of the claim. As a consequence, the invention as claimed in Claims 1, 24, and claims dependent from them remain patentably distinct from AMADO .

(1, 24) The OA fails to address the *inference engine using the partial order planner to determine a plan for achieving at least one of the one or more goals.*

The claims state, in part:

> ... *wherein the inference engine uses the partial order planner to determine a plan for achieving at least one of the one or more goals. ...*

The OA asserts, in part, that AMADO discloses this limitation at C10 L14-34. The cited section of AMADO includes no reference whatsoever to a partial order planner: The cited sections describe software for modeling a task and storing the model in a knowledge base. Except under limited circumstances (none of which applies here) a rejection under § 102 must be supported by a reference that teaches **every** element of the claim. *See* MPEP § 2131. Here, the reference does not teach every element of the claim. As a consequence, the invention as claimed in Claims 1, 24, and claims dependent from them remain patentably distinct from AMADO .

(24) The OA fails to address *a plurality of intelligent agents, each of the plurality of intelligent agents including.*

The claim states, in part:

> *A dynamic business process management system comprising: a plurality of intelligent agents, each of the plurality of intelligent agents including: ...*

The OA completely neglects addressing this limitation. No sections of AMADO include any reference whatsoever to a plurality of intelligent agents: A rejection under § 102 must be supported by a reference that teaches **every** element of the claim. *See* MPEP § 2131. Here, the reference does not teach every element of the claim. As a consequence, the invention as claimed in Claims 1, 24, and claims dependent from them remain patentably distinct from AMADO .

Regarding Claims 2 and 22, the OA fails to address *wherein the knowledge base includes one or more plan goal graphs.*

The claims state, in part:

> ... *wherein the knowledge base includes one or more plan goal graphs.*

The OA asserts, in part, that:

> Amado anticipates the knowledge base includes one or more plan-goal graphs (Amado, col 4, lines 56-65; col 5, lines 7-31; EN: graphics for multilevel problem representation are equivalent.

The first set of referenced lines from AMADO disclose that a product known as Kappa-PC™ provides graphical representation for knowledge and reasoning. Kappa-PC may be downloaded as noted above. No mention is made of plan-goal graphs. In the downloaded .zip file, there is a help file called H1.hlp. After opening H1.hlp, one can navigate to the User Guide, the Developer Tools, and the Object Browser. *See* Attachment 3. The Object Browser is the application that displays a graphic hierarchy. One familiar with the art would be easily able to discern all of the following. The hierarchy displayed is an inheritance hierarchy which is made up of *is-a* relationships. For example, a horse *is-a* mammal *is-a* animal. A plan-goal graph is a different type of hierarchy. The relationships in a plan-goal graph hierarchy are *is-decomposed-into-a-state-that-must-be-achieved* and *may-be-achieved-by*. For example, a goal of being at a particular location *may-be-achieved-by* travel-by-aircraft or *may-be-achieved-by* travel-by-car or *may-be-achieved-by* travel-by-foot. One skilled in the art state would not state that travel-by-aircraft *is-a* state of being at some place. Rather, travel-by-aircraft is a means (a plan) by which one may end up in a location (a goal).

Further, RICH Chapter 7 provides many different graphical depictions of knowledge and comments extensively on their differences and usages. Notably, RICH does not describe plan goal graphs. RICH clearly describes "semantic nets" as distinct from "Is-A" hierarchies (*cf.* RICH pages 204-207, 215, 218). The concept graph could properly be described as a semantic net with causal links. Such a form of semantic not is not discussed in RICH. *See* Attachment 2.

The second set of referenced lines from AMADO disclose that a product known as GBB for Windows™. CORKILL describes the technology behind GBB. *See* Attachment 4. In CORKILL, the phrase "plan-goal graph" does not appear. "Graph" and "goal" do not appear. In "Flexible representation of blackboard information" on page 2 of Corkill states that the

- 14 -

blackboard does not structure the information it contains. In contrast, embodiments of the present invention claim specific structures: a plan-goal graph and a concept graph. In "Common interaction language" on pages 2-3, Corkill states that the information stored on the blackboard must be understood by each automated knowledge source (KS) that wants to use the information. If Corkill were advocating the use of plan-goal graphs and concept graphs, this is the exact place where such advocacy would appear. Instead, he mentions "formulas, diagrams, sentences, and checklists." Again, AMADO does not teach the use of plan goal graphs for planning in the manner claimed.

In addition, the OA neglects to consider the definition of *plan-goal graph* found in the specification, e.g., P11 L07-10.

Finally, the OA appears to rely on either improperly-taken official notice, or an un-cited reference. In each case, a rejection under § 102 is improper. Official notice, without citation to a reference, is appropriate only when the assertion is capable of instant and unquestionable demonstration as being well-known. *See* MPEP 2144.03. It is readily apparent that the assertion "graphics for multilevel problem representation are equivalent <to plan-goal graphs>" is not capable of instant and unquestionable demonstration as being well-known. Except under limited circumstances (none of which applies here) a rejection under § 102 must be supported by a **single** reference that teaches every element of the claim. *See* MPEP 2131.

As a consequence, the invention as claimed in Claims 2 and 22 remain patentably distinct from AMADO .

Regarding Claims 3, 23, 25, and claims dependent from them, the OA fails to address *wherein the knowledge base includes one or more concept graphs.*

The claims state, in part:

... *wherein the knowledge base includes one or more concept graphs.*

The OA asserts, in part, that:

> Amado anticipates the knowledge base includes one or
> more concept graphs (Amado, col 4, lines 56-65; col 5,
> lines 7-31; EN: graphics for multilevel problem
> representation are equivalent).

The referenced lines from AMADO disclose that a product known as Kappa-PC™ provides graphical representation for knowledge ... and reasoning. No mention is made of concept graphs.

First, the OA neglects to consider the definition of *concept graph* found in the specification, e.g., P09 L13-16.

Second, those skilled in the art at the time of invention knew that graphical representation of knowledge is not equivalent to the use of concept graphs. As noted about with regard to the rejection of Claims 2 and 22, the hierarchical graphs in Kappa-PC are inheritance hierarchies (*is-a*) and that the concept graph hierarchies are causal reasoning hierarchies ("*causes*"). For example, the concept that Atlanta-has-rainy-weather *causes* potential-flight-delays-at-the-Atlanta-airport. Further, RICH Chapter 7 (*See* Attachment 1) provides many different graphical depictions of knowledge and comments extensively on their differences and usages. Notably, RICH does not describe plan goal graphs. RICH clearly describes "semantic nets" as distinct from *is-a* hierarchies (*cf.* RICH pages 204-207, 215, 218). The concept graph could properly be described as a semantic net with causal links. Such a form of semantic not is not discussed in RICH.

Third, the OA appears to rely on either improperly-taken official notice, or an un-cited reference. In each case, a rejection under § 102 is improper. Official notice, without citation to a reference, is appropriate only when the assertion is capable of instant and unquestionable demonstration as being well-known. *See* MPEP 2144.03. It is readily apparent that the assertion "graphics for multilevel problem representation are equivalent <to concept graphs>" is not capable of instant and unquestionable demonstration as being well-known. Except under limited circumstances (none of which applies here) a rejection under § 102 must be supported by a **single** reference that teaches every element of the claim. *See* MPEP 2131.

As a consequence, the invention as claimed in 3, 23, 25, and claims dependent from them remain patentably distinct from AMADO.

Regarding Claim 4 and claims dependent from it, the OA fails to establish a *prima facie* case of anticipation.

The claims state, in part:

> *... wherein the inference engine creates one or more plan instances.*

The OA asserts, in part, that:

> Amado anticipates the inference engine creates one or more plan instances (Amado, col 3, lines 13-18).

The referenced lines from AMADO disclose:

> The ability of expert systems to reason about rules as well as input data makes them particularly adept at handling many different types of problems, such a diagnosis and classification, data analysis and interpretation, design and synthesis, predictions and simulation, monitoring, instruction, planning, control and repair.

It is not apparent that the referenced section of AMADO (nor any other section) addresses the creation of plan instances. A rejection under § 102 must be supported by a single reference that teaches **every** element of the claim. *See* MPEP 2131. Here, the reference does not teach an element of the claim, i.e., an inference engine creating one or plan instances. As a consequence, the invention as claimed in Claim 4 remains patentably distinct from AMADO.

Further, the earlier cited portions of RICH, especially Chapter 2 (sections 2.2.2-2.2.4) and Chapter 8 strongly contradict the claim in Amado that rule-based systems (as opposed to inference engines) are particularly adept at planning. *See* RICH at Attachment 1.

Regarding Claim 18 and claims dependent from it, the OA fails to establish a *prima facie* case of anticipation.

(18) The OA fails to address *determining a goal for a user of the business process management system*.

The claims state, in part:

> ... *determining a goal for a user of the business process management system;* ...

The OA asserts, in part, that:

> Amado anticipates <the above-cited portion of the claims> (Amado, col 4, lines 33-34 ...

The referenced lines from AMADO disclose:

> (vii) Planning expert systems select a series of actions from a complex set of alternatives to meet a user's goal.

The referenced lines from AMADO do not disclose determining a goal for a user as claimed. The referenced lines disclose selection to meet goals that have already been determined. A rejection under § 102 must be supported by a single reference that teaches every element of the claim. *See* MPEP 2131. Here, the reference does not teach determining a goal for a user of the business process management system. As a consequence, the invention as claimed in Claim 18 and claims dependent from it remain patentably distinct from AMADO .

(18) The OA fails to address *using a knowledge base to create a plan for meeting the determined goal.*

The claims state, in part:

> *... using a knowledge base to create a plan for meeting the determined goal; ...*

The OA asserts, in part, that:

> Amado anticipates ... <the above-cited portion of the claims> (Amado, col 4, lines 33-34 ...

The referenced lines from AMADO disclose:

> (vii) Planning expert systems select a series of actions from a complex set of alternatives to meet a user's goal.

The referenced lines from AMADO do not disclose using a knowledge base to create a plan for meeting the determined goal claimed. The referenced lines disclose selection to meet goals that have already been determined. A rejection under § 102 must be supported by a single reference that teaches every element of the claim. *See* MPEP 2131. Here, the reference does not teach determining a goal for a user of the business process management system. As a consequence, the invention as claimed in Claim 18 and claims dependent from it remain patentably distinct from AMADO .

(18) The Examiner's Note is not a basis for rejection under § 102.

The OA asserts, in an Examiner's Note, that:

> This claim <Claim 18> is grossly general and fail to convey the intent of the invention.

The undersigned requests that the Examiner withdraw this note, or explain it's relevance to a rejection under § 102.

Regarding Claim 19 the OA fails to address *determining a goal and creating a plan for meeting*
the goal ... using a partial order planner.

The claims state, in part:

> *... wherein the act of determining a goal and creating a plan for meeting the goal*
> *is performed using a partial order planner; ...*

The OA asserts, in part, that:

> Amado anticipates ... <the above-cited portion of the claims> (Amado,
> col 3, lines 13-18; EN: comments related to partial order
> planner of Claim 1 applies).

The Examiner's comments related to partial order planner of Claim 1 includes:

> ... from the specification, page 19, lines 18-21, a
> planner merely solves what is normally referred to as an NP
> type problem; from specification, page 20, lines 1-9, a
> partial order planner determines a less than optimal
> solution or what may be referred to as a local optimum;
> using para 2 above, a generalized expert system is
> equivalent to a partial order or least commitment planner);
> ...

"para 2 above" asserts:

> 2. The claims and only the claims form the metes and
> bounds of the invention. The Examiner has full latitude to
> interpret each claim in the broadest reasonable sense.
> Examiner will reference prior art using terminology
> familiar to one of ordinary skill in the art.

The referenced lines from AMADO do not disclose the use of a partial order planner. The
OA explicitly acknowledges this by relying on the Examiner's Note to equate a generalized
expert system to the required partial order planner.

First, the OA neglects to consider the explicit differences between expert systems and
partial order/least commitment planners found throughout the specification, e.g., P05 L10 – P06
L04 (describing partial order planners), P09 L12 – P11 L15 (a glossary listing different

definitions for, among other things, *expert system, partial order planner, least commitment planner*). Taking a broad interpretation of the claims does not include intentionally ignoring distinctions made clear in the written description.

Second, those skilled in the art at the time of invention knew that generalized expert systems are not equivalent to partial order planners. ·A rule-based expert system is poorly suited to the problem of a partial order planner because rules do not conveniently and compactly support the relationships needed in planning (e.g., problem decomposition into sub-problems, conflict management, sequencing of sub-problems, constraint management). RICH pages 40-45 and the discussion in Chapter 8 provide a detailed explanation, summarized earlier in this Reply, as to why expert systems are not equivalent to partial order planners. *See* RICH at Attachment 2.

Third, the OA appears to rely on either improperly-taken official notice or an uncited reference. In either case, a rejection under § 102 is improper. Official notice, without citation to a reference, is appropriate only when the assertion is capable of instant and unquestionable demonstration as being well-known. *See* MPEP § 2144.03. It is readily apparent that the assertion "a generalized expert system is equivalent to a partial order or least commitment planner" is not capable of instant and unquestionable demonstration as being well-known. Except under limited circumstances (none of which applies here) a rejection under § 102 must be supported by a **single** reference that teaches every element of the claim. *See* MPEP § 2131.

As a consequence, the invention as claimed in Claim 19 remains patentably distinct from AMADO .

Regarding Claim 20 the OA fails to address *wherein the partial order planner is a least commitment planner.*

The claims state, in part:

> *... wherein the partial order planner is a least commitment planner.*

The OA asserts, in part, that:

> Amado anticipates ... <the above-cited portion of the claims> (Amado, col 3, lines 13-18; EN: comments related to partial order planner of Claim 1 applies).

The Examiner's comments related to partial order planner of Claim 1 includes:

> ... from the specification, page 19, lines 18-21, a planner merely solves what is normally referred to as an NP type problem; from specification, page 20, lines 1-9, a partial order planner determines a less than optimal solution or what may be referred to as a local optimum; using para 2 above, a generalized expert system is equivalent to a partial order or least commitment planner);
> ...

"para 2 above" asserts:

> 2. The claims and only the claims form the metes and bounds of the invention. The Examiner has full latitude to interpret each claim in the broadest reasonable sense. Examiner will reference prior art using terminology familiar to one of ordinary skill in the art.

The referenced lines from AMADO do not disclose the use of a least commitment partial order planner. The OA explicitly acknowledges this by relying on the Examiner's Note to equate a generalized expert system to the required least commitment partial order planner.

First, the OA neglects to consider the explicit differences between expert systems and partial order/least commitment planners found throughout the specification, e.g., P05 L10 – P06 L04 (describing partial order planners), P09 L12 – P11 L15 (a glossary listing different

definitions for, among other things, *expert system, partial order planner, least commitment planner*). Taking a broad interpretation of the claims does not include intentionally ignoring distinctions made clear in the written description.

Second, those skilled in the art at the time of invention knew that generalized expert systems are not equivalent to least commitment partial order planners. A rule-based expert system is poorly suited to the problem of a partial order planner because rules do not conveniently and compactly support the relationships needed in planning (e.g., problem decomposition into sub-problems, conflict management, sequencing of sub-problems, constraint management). RICH pages 40-45 and the discussion in RICH Chapter 8 provide a detailed explanation, summarized earlier in this Reply, as to why expert systems are not equivalent to least commitment partial order planners. *See* RICH at Attachment 2.

Third, the OA appears to rely on either improperly-taken official notice or an uncited reference. In either case, a rejection under § 102 is improper. Official notice, without citation to a reference, is appropriate only when the assertion is capable of instant and unquestionable demonstration as being well-known. *See* MPEP § 2144.03. It is readily apparent that the assertion "a generalized expert system is equivalent to a partial order or least commitment planner" is not capable of instant and unquestionable demonstration as being well-known. Except under limited circumstances (none of which applies here) a rejection under § 102 must be supported by a **single** reference that teaches every element of the claim. *See* MPEP § 2131.

As a consequence, the invention as claimed in Claim 20 remains patentably distinct from AMADO.
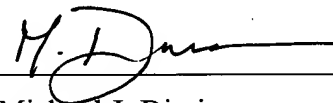
CONCLUSION

With consideration of the above remarks, the undersigned submits that this application is in condition for allowance, and such disposition is earnestly solicited. If the Examiner believes that the prosecution might be advanced by discussing the application with the undersigned, in person or over the telephone, we would welcome the opportunity to do so.

Respectfully submitted,

Date: *10 December 2003*   By: *M. Dm*

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